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10/534,063

10/03/2005

Walter Demuth

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EXAMINER

FLANIGAN, ALLEN J

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

09/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/534,063 | Applicant(s) DEMUTH ET AL. | |
| | Examiner Allen J. Flanigan | Art Unit 3744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/2005, 9/2008</u> . | 6) <input type="checkbox"/> Other: ____. |

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "curved section" of claim 4, the "air flow paths, air flow control elements, at least one air delivery device and a housing" of claim 25 and the "compressor, condenser, expansion valve, collector" of claim 26" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims above are rejected due to the profligate use of terms "in particular", "for example", "such as", and "preferably". Such phrases render the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Further, claim 13 recites that the feed line and discharge line "extend along the longitudinal direction of the distribution or collection spaces at which they are arranged", but claim 1 fails to implicitly or explicitly recite any such longitudinal direction (the recited spaces are not limited to those which inherently define a longitudinal direction; for example, the claim scope would encompass spherically shaped collection spaces). Claim 18 similarly references this undefined "longitudinal direction".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-14, and 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Sasaki et al.

As noted in the PCT search report, Sasaki et al. shows every element of the invention claimed in the above claims, including inlet and outlet lines, two side by side modules or units with manifold (distribution and collection) spaces subdivided by partitions (separating device) and connected by a flow connecting device interconnecting the side by side manifolds, and throughflow devices (tubes 21). Note also frames 72 that attach the modules together regarding claims 14 and 23.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al.

Sasaki et al. indicate that their disclosed duplex heat exchanger is suitable for use as an evaporator or condenser in vehicle coolers; the remaining recitations of claims 25 and 26 concern notoriously conventional structures of known heat exchange systems for vehicle AC systems, and to employ Sasaki et al. as a heat exchanger, evaporator, etc. in a conventional system would have been obvious.

Claims 4, 5, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. in view of Fink.

Fink teaches the provision of both bends or curved portions and twisted ends in flat multibore heat exchangers for air conditioners; the twisted ends permit small diameter header tubes to be used in conjunction with wide flat tubes, and the bends effectively lengthen the flow passages between the headers they are connected to by forming serpentine flow paths. In view of this, it would have been obvious to one of ordinary skill in the art to adapt either or both features to the flat multibore tubes of Sasaki et al.'s heat exchanger.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. in view of Haussmann and Shinmura et al.

Sasaki et al. show embodiments in which the fins of adjacent modules are separated, and others in which unitary fins span both units to thermally connect them (Fig. 36). It is known to be desirable to thermally decouple adjacent sections of such heat exchangers (see abstract of Haussmann), with the provision of air gaps or slits in the fins to retard heat flow. Shinmura et al., however, indicate that a nonpreferred method of accomplishing such thermal decoupling in duplex heat exchangers is via insulating material (see lines 55-64 of column 2 of Shinmura et al.). Thus, it would have been obvious to one of ordinary skill in the art to replace the air gap shown in most embodiments of Sasaki et al. with an insulating material connecting the units, to discourage heat conduction therebetween.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references show various heat exchanger designs with plural modules, twisted tube ends, etc.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Allen J. Flanigan/
Primary Examiner, Art Unit 3744